

# THE ZOOLOGIST

---

No. 686.—August, 1898.

---

## WILLIAM TURNER, THE FATHER OF BRITISH ZOOLOGY.

By REV. H. A. MACPHERSON, M.A.,

Author of 'A History of Fowling,' 'A Fauna of Lakeland,' &c.

THE near advent of the International Zoological Congress, to be held at Cambridge during the present month, renders it fitting that attention should be drawn to the important part which Cambridge played in training the first naturalists bred upon English soil. That the revival of learning trained the youth of this country to concentrate their thoughts upon the study of dead languages is, of course, an obvious commonplace; it would be a grievous mistake to infer from this circumstance that a spirit of higher research was wholly absent from the minds of the ambitious youths who gathered together at Cambridge to acquaint themselves with the truths of philosophy. Any such erroneous surmise is disproved by the work accomplished by William Turner, to whom the title of "Father of British Zoology" may fairly be applied. This voluminous writer was apparently a man of humble extraction,—one of a family of that name resident at Morpeth,—where his father carried on the trade of a tanner. It was in rambling in the copse woods near Morpeth that the future naturalist spent his early years, searching for birds' nests in the thickets, or listening to the winter songs of the Dippers (*Cinclus aquaticus*), as those sprightly birds

Zool. 4th ser. vol. II., August, 1898.

z

curtseyed on the rocks in the rapid eddies of the north-country streams.

When young Turner at length awoke to realize the possibilities of life, and yearned to secure a college education, he found his path to success barred by the poor circumstances of his family. Happily, an exhibition placed at his disposal by Lord Wentworth smoothed the difficulties of the poor scholar. In due course he became a member of Pembroke Hall, Cambridge. There he studied with Ridley and other men who afterwards became famous in history, and there he took his degree in 1529-1530, being also elected a fellow of his college in the latter year. His cotemporary naturalist, John Caius, was about twenty-three when he was elected to a fellowship at Gonville Hall. If we venture to conjecture that Turner obtained his fellowship about the same age, it would appear that he was born about the year 1507, *i.e.* during the last years of Henry VII. He spent the next ten years of his life as a Cambridge don, acting latterly as senior treasurer of his college. As he constantly resided within easy reach of the then undrained fens, in which Savi's Warbler (*Locustella luscinioides*) reeled to its brooding mate among the forests of reeds, it is not surprising that he acquired an intimate knowledge of the habits of British wildfowl. Did he seek to traverse the quaking bogs in quest of some rare flower which was needed for his herbarium? Why, then, the Black-tailed Godwit (*Limosa belgica*) yelped round the track of the venturesome naturalist. Had he occasion to search for water-plants in the ponds of the district? Why, then, his intrusion into a region of watery waste must of course be resented by the clouds of Black Terns (*Hydrochelidon nigra*), which filled the air above their breeding colonies with deafening clamour as they hovered about their eggs, or swept hither and thither in tumultuous confusion. But Turner must have enjoyed his greatest triumph when he visited the wild Cranes (*Grus communis*) that *then* returned annually to breed among the fens. His interest in these fine birds must have been very great, for he took pains to find the young Cranes in many seasons. (This we know from the emphatic language which Turner himself employed on purpose to confute the assertion then current that the Crane did *not* breed in England: "Apud Anglos etiam nidulantur grues in locis



palustribus, et earum pipiones sæpissime vidi, quod quidam extra Angliam nati falsum esse contendunt.”)

But Turner does not appear to have confined his field work to the neighbourhood of Cambridge. If he was eager to watch the Marsh Harrier or “Balbushard” (*Cinclus æruginosus*) quartering the marshes of Ely in quest of Duck or Coot, assuredly he was no less pleased to visit the Cormorants which nested on the lofty trees also occupied by a Norfolk Hernery.

But Turner was a man of strong religious convictions, and he lived in times which encouraged strife. Good naturalist as he was, he allowed his better judgment to be overpowered by sectarian bitterness, and for a time he lost his liberty. Released from prison, probably about 1542, he wisely went abroad, and occupied himself with his favourite hobbies. His continental travels enabled him to become acquainted with the habits of the White Stork (*Ciconia alba*), the Hoopoe (*Upupa epops*), and other birds which he had never met with in England. The pleasure which he derived from his wanderings must have been immense. For example, when he climbed the Alps, he became aware for the first time of the existence of a species which he had never heard of before—the European Nutcracker (*Nucifraga caryocatactes*). To us the bird would be simply an *old* favourite, whose undulating flight recalled many happy hours spent amidst glorious pine forests; but to Turner it was a revelation, a form such as he had never contemplated,—its flight strange to his eye, its note weird, its coloration unique in his experience. Then, too, there was the curious fact that (as the Swiss peasants assured him), it did not feed upon grain or carrion like the Rooks and Crows of his own country, but it depended upon the harvest of nuts which the coppices of the wooded valleys supplied, reminding him of the little blue Nuthatches, or “Nut-jobbers,” as the country-folk called them (*Sitta cæsia*), the birds whose shrill notes and lively actions had so often cheered him when strolling through the Cambridge gardens. Turner travelled into Italy, and even attended the botanical lectures of Lucas Ghinus at Bologna before he journeyed to Zurich, the home of Conrad Gesner. The meeting between the two great naturalists must have possessed many interesting features, and there can be no

doubt that they were mutually impressed by one another's attainments.

Gesner, for example, was careful to allude to Turner in after years in terms of sincere admiration. On quitting Zurich, the English traveller journeyed to Basle, and thence to Cologne. During his residence in the latter city, in 1544, he printed the first ornithological work that the New Learning was destined to produce. Turner was still comparatively young, probably on the right side of forty, but his scholarly taste had already induced him to apply his critical skill to the difficult task of determining the particular species of birds described by Aristotle and Pliny. Accordingly, he entitled his little book, 'Avium præcipuarum quarum apud Plinium et Aristotelem mentio est, brevis et succincta historia ex optimis quibusque scriptoribus contexta.' Trifling as this may appear beside the ponderous tomes of Gesner and Aldrovandus, the fact remains that it forms no unimportant contribution to the science of the sixteenth century. Indeed, Gesner quoted every line that Turner printed, only adding the contents of such private letters as passed between his friend and himself in the interval between 1544 and 1555. It was, by the way, in 1550 that the Privy Council unsuccessfully nominated Turner for election as Provost of Oriel College, Oxford. The fact deserves notice, because Oriel was destined to be Gilbert White's college. But however bitterly Turner may have felt the loss of this and other expected preferment, he found consolation in his zoological pursuits, and was always ready to amplify a previous statement from his latest experience. Thus he early pointed out the distinctions which appeared to separate the Black Kite (*Milvus migrans*) from the Red Kite (*M. ictinus*), stating that the Kites which he had met with in Britain were larger and redder than the Kites which he had seen in Germany; adding that, while the Red Kites frequented towns and cities, in which they became so bold as to snatch food out of the hands of children, the lesser and blacker species rarely appeared in the vicinity of towns. He is at pains to explain that, though he had very often seen the Black Kite in Germany (probably in the valley of the Rhine), he had never met with it in Great Britain. He returned to the subject in a later letter to Gesner, in which he makes the following statement (literally rendered):—"We have



Kites in England, the like of which I have seen nowhere else. Our own birds are much larger than the German birds, more clamorous, more tending towards whiteness, and much greedier. For such is the audacity of our Kites, that they dare to snatch bread from children, fish from women, and handkerchiefs from off hedges and out of men's hands. They are accustomed to carry off caps from off men's heads when they are building their nests."

Another admirable specimen of Turner's discriminating skill may be found in his lucid refutation of the absurd theory that the Robin (*Erithacus rubecula*) and the Common Redstart (*Ruticilla phœnicurus*) did not represent distinct species, but were in fact identical. Turner truthfully explains to us the woodland habits of the Redbreast in the nesting season, adding that he spoke from personal knowledge: "*Hæc quæ nunc scribo, admodum puer observavi.*" He describes the dress of both sexes of the Redstart, its habit of nesting in holes in trees and crevices of walls, its characteristic actions, and much besides; concluding with the remark that while the Redstart disappears from Britain before the arrival of winter, Redbreasts can be found all through the year, though it is not until the end of autumn, when the young Robins have almost entirely acquired the red plumage of the breast, that these birds withdraw from their summer haunts into the towns and villages. Again, he surprises us with the statement that he knew white Herons (*Ardea*) to occur in England in rare instances; but, ever anxious to guard against any misconception, he shrewdly points out that such white birds as he is referring to belonged to no foreign species of Heron, but agreed with their blue companions in every particular except their absence of coloration.

Had such a statement been made by anyone except Turner, we should at once have jumped to the conclusion that the so-called "white" Herons were neither more nor less than Spoonbills (*Platalea leucorodia*); but in the present case the suggestion is mentioned only to be dismissed. For, in the first place, Turner was well acquainted with the Spoonbill as a British bird. It may well have been upon the authority of Turner that Gesner wrote that the Spoonbill ("*Platea nostra*") "is captured in England on the shore of the sea, and when kept in confine-

ment feeds upon fish, together with the intestines of fowls and other kitchen refuse." Certain it is that when Turner was in Italy he saw white Egrets ("Albardeolas" he calls them), which, he says, only differed from the "Shovelard" of the English in lacking the broad bill of the Spoonbill. And secondly, Turner states that the rare white Herons which occurred in Britain not only joined company to the common blue Herons (*Ardea cinerea*), but actually bred with them, and produced offspring by their union. Here are his words:—"Visa est etiam alba (ardea) cum (not inter) cyanea apud Anglos nidulari, et prolem gignere. Quare ejusdem esse speciei satis constat." This last sentence disposes of the idea which Turner may himself have considered, that these white Herons represented one of the white species of Egrets, such as he had met with in Italy. Clearly, the white Herons which occurred in Britain must have been albinos or white varieties of the common bird, such as have been obtained in modern times.

Gladly would we linger to discuss Turner's numerous references to the bird-life of Merrie England, picturing in our mind's eye the havoc which the blue "Henharroer" (*Circus cyaneus*) wrought in well-stocked poultry-yards, the Osprey (*Pandion haliaëtus*) purloining stock-fishes from the stews, and the Shel-drake (*Tadorna cornuta*) fighting round her nest hard by the tideway of the Thames; but present interests require us to indicate that Turner did not confine his attention to ornithology.

We have hitherto failed to ascertain that Turner studied mammals like his brother Cantab, Dr. Caius; but both the courtly doctor of medicine and the militant divine were keenly interested in the fish fauna of the British Islands. It was Dr. Caius who first discovered that the Ruff (*Acerina vulgaris*) existed in the waters of an English river—the Norfolk Yare (the doctor was a Norfolk man). Yet the notes which Dr. Caius published himself, or sent direct to Gesner, however interesting, will hardly bear a safe comparison with the list of British Fishes which Gesner received from Turner.

Turner was residing at Wissenburg when he drafted this rough catalogue, probably at a distance from his private memoranda: he wrote it in 1557. Eleven years later he evinced his sustained interest in the subject by alluding in print to his

intention of publishing a work upon the names and natures of the Fishes to be found within the dominions of Queen Elizabeth. But the catalogue of 1557 was a remarkable production for the middle of the sixteenth century, and refers to many old names of British Fishes. Thus the title of "Keeling" is applied to Cod (*Gadus morhua*) of a particular size. Or again, Turner's remarks have a historical value, as when he represents that the Smelt (*Osmerus eperlanus*), which rarely ascends the Thames higher than Woolwich at the present day, used in his time to follow the tides as high up as Kew and Brentford in the spring of the year. How carefully Turner studied the specific characters of fishes may be guessed from the gravity with which he rejects the fallacious opinion entertained by some of his countrymen that the Sprat, or "Sprote," as the Londoners of those days termed it (*Clupea sprattus*), was not the young of the Herring (*Clupea harengus*), nor an immature form at all; but a valid and distinct species of fish. We can well believe that Turner's failure to produce his promised monograph of British Fishes was due in part to the strange vicissitudes of his career; in part to the encroachments of his Herbal upon his spare time.

Whatever shortcomings may be detected in the writings of William Turner, the man himself is worthy of our homage, not only as the first sturdy Englishman who essayed to study our insular fauna in a spirit of intelligent research, but also because, like Dr. Caius and Dr. Fauconer of his own generation, he delighted to clasp hands with brother naturalists across the "silver streak," thus bringing to our own remembrance the signal truth that the naturalist belongs to no single motherland, but is united with his comrades in the bonds of a generous friendship wherever the waves and the winds may carry him.

Dear old Turner was not spared to attain a very great age. His failing strength lasted long enough to enable him to correct the text of the edition of his Herbal printed in 1568; but that same year brought his sorely troubled life to a peaceful termination. On July 7th the great Northumbrian naturalist "quietly" laid his head upon the pillow and passed away. We gather from the epitaph which Jane Turner placed upon her husband's monument in St. Olave's Church, that the veteran was "*ac tandem*

*corpus senio, ac laboribus confectum,*" when he answered the last roll-call.

The flowers that Turner loved so well had only blossomed for five more seasons when another famous *alumnus* of Cambridge laid aside his study of zoology. On July 29th, 1573, the spirit of John Caius fell upon a heavy slumber.

Oxford men are not disloyal, but we *do* envy our sister University the memory of these early naturalists, who surely owed whatever was noblest in their characters to the wise and discriminating education of their *Alma Mater*.



## MIGRATION AT THE SPURN LIGHTHOUSE IN 1897-98.

By JOHN CORDEAUX, F.R.G.S., M.B.O.U.

I AM again (as in 1896) indebted to Mr. W. G. Cawnter, one of the light-keepers of the Spurn, for the following notes of birds observed by him at the Light in 1897 and part of 1898 :—

### FEBRUARY, 1897.

15th.—A few Starlings struck, and a Thrush killed.

### MARCH.

30th.—One Lapwing, one Grey Plover, one Little Grebe, two Larks, one Fieldfare, and several Chaffinches struck and were killed. Wind W.N.W., overcast, and drizzling rain.

### APRIL.

18th.—The Ringed Plovers are breeding ; several nests have from one to two eggs.

19th.—A very large flock of Dunlins on the coast.

27th.—Lesser Tern seen for the first time.

28th.—Several Redstarts, Warblers, and Chiffchaffs struck. S.W. breeze, very gentle ; night very dark.

### MAY.

6th.—Several Chiffchaffs struck. Overcast, W., gentle breeze.

8th, 2 a.m.—Several Chiffchaffs and Redstarts striking. S.S.W., gentle, overcast.

26th.—Sedge Warblers, Whitethroats, and Redstarts flying around lantern. Light air from S. ; night very dark.

### JUNE.

17th.—Swift killed at lantern ; several flying around.

### JULY.

1st.—Young Starling killed against lantern. N.E. (4), overcast and drizzle.

- 4th.—Flock of young Rooks flying about the place.  
25th.—Large numbers of Swallows flying southward.  
26th.—Several to south.  
28th.—Two Fern-owls on the sands.

## AUGUST.

- 26th.—A Gull struck dome of lantern and was killed. "It is nineteen years since a Gull struck a lantern in my charge."  
27th.—Several Swifts observed.  
30th.—Several Warblers and Whitethroats struck. S.W., moderate, overcast and rain.  
31st.—A few Swifts flying around.

## SEPTEMBER.

- 2nd.—A large number of Swifts (about fifty) roosting in the tower-windows. Some Warblers flying around and striking lantern. W.N.W., moderate, dark and overcast.  
3rd.—Towards evening a number of Swifts flying around, but less than on the 2nd : several roosting in tower-windows.  
4th.—Several Kestrels observed flying south.  
30th.—A large number of birds flying about light, a few Knots striking. Several Snipe during the day.

## OCTOBER.

- 2nd.—A large number of birds—Curlews, Knots, Thrushes, Larks, Plovers, and Golden-crested Wrens—flying around the light. W.S.W., gentle, dark and overcast.  
7th.—Several Starlings struck; two Wigeon (young males) struck the base of the lantern and were killed. W.S.W., dark, overcast, showery.  
9th.—Many Golden-crested Wrens about the place.  
18th.—Lark struck and killed; several Crows passing to the south; also great numbers of Linnets.  
21st.—First flight of Woodcocks.  
23rd.—Several Starlings struck the lantern. E., moderate, overcast, but very clear. Robin observed for first time.  
24th.—Several Starlings and Larks struck.  
27th, 3 a.m. to daylight.—A few Starlings struck.

## NOVEMBER.

1st.—A lot of Crows flying south ; several Thrushes about dunes, and also striking.

5th.—A few Starlings struck. Dark, and drizzling rain.

20th.—Stormy Petrel caught on lantern gallery. W., dark and misty. Flock of Geese seen flying south during day.

21st.—Flock of Ducks to south.

24th.—An immense number of Knots flying south. A large number of birds flying around the light—Knots, Golden, Grey, and Green Plovers, Woodcocks, Snipes, Starlings, and Thrushes ; many killed by striking. S., night dark and clear, with frequent showers of drizzle.

25th.—Several Woodcocks shot amongst dunes.

26th, 7 p.m.—A Knot struck and was killed.

29th.—Several Geese about ; one shot.

## DECEMBER.

7th.—Two flights of Stock Doves to the south during day. (These would probably be Ring Doves, *Columba palumbus*.—J. C.)

11th.—During the week large numbers of Rooks to south.

24th.—Large flock of Ducks to south.

26th, 5 a.m.—Sanderling struck and killed.

## JANUARY, 1898.

12th.—Knots, Curlews, and Plovers flying around light. S.S.W. (2), overcast, misty.

13th.—Gulls, Wigeons, Knots, and Plovers flying around light. S.W. (2), overcast, misty.

14th.—Larks and Starlings around light ; Sanderling killed. W.S.W. (2), overcast.

15th.—The same.

## MARCH.

11th.—Starlings and Larks striking lantern. S.E. (3), overcast.

13th, 1 until 2.30 a.m.—Starlings, Curlews, Lapwings, and Sanderlings around light. Overcast, misty.

16th.—Starlings and Larks around light.

17th.—The same.

22nd, 1 to 3 a.m.—Starlings and Larks striking.

24th, 4 a.m.—A few Starlings flying round ; Gold-crested Wren struck and killed.

Mr. Thomas O. Hall sends the following notes from Flam-borough Lighthouse :—

“ We had a very straggling migration of Rooks and Jackdaws; they commenced on Oct. 21st, and, as we had a continuance of winds from S.S.E. to S.S.W. for seventeen or eighteen days, so the migration continued to Nov. 7th. We had then a great rush of Fieldfares, with scarcely any other birds. It was the greatest rush of Fieldfares I have seen for at least twenty years *during the autumn migration*. They commenced about 11 p.m. on the night of Nov. 24th, and continued to daylight on the 25th. I once saw as large a rush of Fieldfares four years ago, in January, coming from the north and flying south; this was after a heavy fall of snow in Scotland.

“ On Feb. 13th, at midnight, there was a slight migration of Fieldfares and Golden Plovers; they appeared to come from the eastward, at least they were travelling westward.

“ On Feb. 9th, at 9.30 a.m., I was up in the lantern, and, hearing a great cawing, I looked out, and saw a flock of about two hundred Rooks coming from the eastward; they flew over the top of the lantern and settled in the field beyond, feeding for an hour, and then going west. There has been a great migration, but no sorts of birds in any quantity except the Fieldfare. I think this light has never been a good one for birds; they get in the red rays of light and fly away, but in the white ray they get dazzled, and fly to the lantern-windows.”



## ROUGH NESTING NOTES FROM YORKSHIRE.

BY OXLEY GRABHAM, M.A., M.B.O.U.

HERONS had eggs the second week in February in spite of most inclement weather, and they still hold their own in face of persistent trapping on the trout streams. I remember some years ago, when fishing for the first time a well-known stream which shall be nameless, my wrath at seeing five Herons gibbeted hard by; a few days' experience, however, convinced me that a clean bill cannot unfortunately be given to them, for they often destroy fine fish which they cannot possibly eat, out of sheer devilment, and fond as I am of them, I must own they do a good deal of harm; however, I believe fully in the principle of live and let live, and would gladly sacrifice a few fish for the pleasure of seeing this stately bird. Thanks to the protection afforded it on certain estates, it is likely to gladden the eyes of the field naturalist for some time to come.

Woodcock are increasing yearly, and I know of a wood where over twenty pairs have bred this year, but the young are off long before the shooting season. The same increase I have noted in the breeding of Snipe and Redshank. I know of many colonies of the latter, one numbering nearly twenty pairs of birds, and so far from the nests always being placed in a tuft of grass, with the blades most carefully concealing the eggs, as we are told in the books, I have frequently found them on the open moor amidst the short ling, without any attempt at concealment; and I have found Snipe in exactly similar places.

The Lapwing, despite the netting, eggging, and shooting that it has to contend with, holds its own well in most places: this I attribute to their wonderful adaptability to circumstances. I find their nests equally on the highest fells, in the marshy plains, on the moorlands, and amidst enclosed ground, and no matter how their eggs are taken, in a very short time they are laying again. I see Mr. Cordeaux states that the Lapwing is getting scarcer in

Lincolnshire, but it is not so in the "broad-acred shire," and long may it be before its "mournful, piercing, despairing cry" ceases to be a common country sound.

On June 3rd, with Mr. James Backhouse, I watched on a certain fell, 2225 feet above the sea-level, at the distance of only five or six yards, a Dunlin brooding her just-hatched young; it was sleeting and bitterly cold, and the poor little birds must have wished they were back in the shell. There were a nice lot of the birds about, and the name they are known by in this district is "Jack Plover."

On the estate of a well-known Yorkshire naturalist, whose grounds are a perfect paradise of bird-life, and a haven of refuge to rare and common alike, the Nuthatch, Lesser Spotted Woodpecker, and Hawfinch have bred this year; and what is of still greater interest, though the nest could not be found, the owner told me that the Crossbills, which are there all the year round, were seen carrying bits of bark, fir-needles, moss, wool, &c.; but the covers are so dense that though every effort was made to trace the birds, the attempts hitherto have failed.

The Turtle Dove is yearly increasing its range, and it breeds in parts of the county where a few years ago it was unknown.

In secluded places the Goldfinch, locally known as "Redcap," still breeds not uncommonly, despite the fact that I knew of nearly forty being caught by one birdcatcher in less than a week one autumn.

The Pied Flycatcher is by no means rare, and all the nests I have examined were lined with the leaves of *Luzula campestris* or *pilosa*. In one valley I knew of a dozen pairs, but they each keep to their own district, and the nesting places are a good distance apart. I never found hair myself in a Pied Flycatcher's nest; they are very loosely put together and difficult to get out intact.

The Grasshopper Warbler has been common. Most people consider it rare, but it is a very peculiar little bird and wants a good deal of knowing. After a spell of cold weather they will sometimes leave the district entirely, or, as they did in one locality this year, remain there but keep perfect silence. There is a good deal of art in finding their nests; my tutor therein, a past master at the game, has found more Grasshopper Warblers' nests than

any one else that I ever heard of. I am not going to reveal the secret, for I have had bitter experience of that sort of thing. I once knew of a pair, and told a man who I thought was above suspicion, but he promptly went and shot one of them, which taught me a lesson I have not forgotten. Suffice it to say that under certain conditions the bird will sulk, and nothing will induce her to leave the nest; and in one instance on being touched by mistake, she feigned death, and allowed herself to be handled as if dead—a quivering of the eyelid was all that showed she was shamming. They are most prolific little birds, and I have known thirty eggs taken from one pair. I very much deprecate this sort of thing, but there are times when in pursuit of knowledge and experience, especially if one has to rely upon the good offices and information originally imparted by another, when all one can do is to sit tight. I may say that I see no harm in taking a clutch of eggs whatever, but after that I believe in allowing the birds to lay again, which they always do, and rear their young in safety. I found a nest of *Locustella naevia* on May 30th, containing five fresh eggs. The nest was in a big tussock of *Aira cæspitosa* (common turfy hair-grass), in the middle of a big osier-bed, or willow garth as it is called in the county, and was made of a foundation of willow-leaves, &c., and coarse grass, a very little moss, and lined with finer grass—a bulky nest. All the Grasshopper Warblers, when driven off their nests in thick cover, run along the ground a few yards, for all the world like a Mouse; then fly up on to some twig, reed, &c., for a few moments; and afterwards drop down into the thick grass.

I have examined a large number of Swifts' nests this year, and so far from their being small and loose structures, they have been most bulky, and in every instance they contained fresh flowers with long stalks of the buttercup. Now I have found fresh flowers of the buttercup in the nest of our old friend "*Passer damnabilis*;" and I have often wondered whether the Swifts occasionally take possession of these nests and agglutinate them together with their salivary secretion. But I have found Swifts' nests still containing fresh buttercups, with no Sparrows near, so that the Swifts must have taken them there themselves, though I never saw, or met with anyone who had seen them doing so. With all due deference to so excellent an authority

as Mr. Howard Saunders, I must demur to his statement that when three eggs are found in a Swift's nest they are probably the produce of two females. I have found this to occur so often, and in isolated nests, that unless for the sake of argument one supposes the Swift to regularly lay in each other's nests, the evidence, to my mind, is strongly in favour of the hen bird by no means infrequently laying three eggs.

Kingfishers are certainly not so rare as many people suppose, but they are often unobserved. I knew of a nest, the young of which were reared within two miles of York Minster.

I witnessed the prettiest ornithological sight that I have seen for many a long day, on June 15th, on a certain large sheet of water. I rowed out to examine a Great Crested Grebe's nest, which was made on a foundation of various species of *Potamogeton*, surmounted by a quantity of stalks of a large *Equisetum* or mare's-tail. There were two other similar nests near, and I have generally found one or more of these false nests near the true nest of the Great Crested Grebe. The idea is that the cock bird uses them as resting-places or look-out stations; and though I have not been able to verify the same myself, still it seems a feasible explanation. When I arrived within a couple of hundred yards of the nest I could see through my glasses that the old bird was greatly excited. She allowed me to advance within forty yards of her, when I stopped my boat and saw that the eggs had been hatched, for she had three young ones, two or three days old with her; one was on her back, and the other two were tucked away, one under each wing. She gradually sunk herself in the water till only her head was above it, and then dived, coming up a long distance from where she went down. I never before had the pleasure of seeing a Grebe dive with her young ones, and it was a sight I most thoroughly appreciated. While the Great Crested Grebe is, if anything, on the increase, the Little Grebe, in my experience, is slightly diminishing in numbers; there are plenty in the winter, but few in the breeding-season, and they do not breed on the big sheets of water, as the large Pike play havoc with them. They are well known throughout all the three Ridings as "Tom Puddings," a cognomen which I do not remember to have seen mentioned in any book.

On this same sheet of water where the Great Crested Grebes



were, I detected through my glass three pairs of Tufted Ducks, and on looking over a small island I found two nests, each containing ten eggs completely covered up with down. The other Ducks which I have found breeding this season in a wild state in various parts of the county are the Mallard, Teal, Shoveller, and Pochard.

Nightjars have been common. I took a friend to obtain a photograph of two eggs *in situ* that I had found on a moorside. The hen harmonized so beautifully with the dead bracken and bare ground that it was some time before I could make him see her. After photographing the eggs he fastened green cloth over the camera, tied a thread to the shutter, and then hid behind a large stone about twenty yards away. Though an hour was allowed she failed to come back, so we pinned portions of the bracken, which was growing all round, on to the green cloth, and then hid up again, when, after waiting about twenty minutes, on she came. Allowing a few minutes for her to settle, my friend took his shot, and an excellent one it has turned out.

This same friend told me of a prolific nest. Four years ago he found a Carrion Crow's nest; the next year it was tenanted by a Long-eared Owl, very abundant in the county; last year a Sparrowhawk took possession, and this year a Kestrel.

Everybody heard with the greatest regret of the recent shooting of an Osprey near Beverley—*audi alteram partem*. Some time ago, on the gentleman's estate I have before mentioned as being such a paradise for birds, an Osprey appeared and remained for six weeks; when, although it levied heavy toll on the big Trout in the lake, it was a welcome visitor, and allowed to pursue its own habits. Would that there were more such naturalists, and such havens of refuge! Some men, I verily believe, would shoot at an archangel himself if he appeared on the wing. A fine of five shillings is ridiculously inadequate; when five pounds can be obtained for the specimen it is no deterrent at all.

I am afraid that the laws relating to bird-protection are in many cases but a farce; for example—shade of Dracon!—in some places the eggs are allowed to be taken, but not the young or old birds, and, as Mr. Southwell pointed out in an excellent letter to 'The Field,' it is not fair that the onus of getting up a

prosecution should rest with a private individual. It is not the ornithologist who takes one clutch for scientific purposes who does the harm, but the professional collector who decimates whole colonies time after time. I frankly own that I am indebted for a great deal of my knowledge of the various nesting-places, resorts, and habits of some of our rarest birds to men who, unfortunately, are sometimes tempted by the ridiculously high prices paid by collectors to shoot these birds in the breeding-season, for the sake of their plumage; but I strongly maintain that it is the collectors who are the most to blame—*qui facit per alium facit per se*—and not these men who are not too well endowed with this world's goods, and who, most of them, are decent fellows, struggling to earn an honest livelihood. Only this season I have known, in the county, of Cormorants being shot on the coast; Dotterel on the wolds; a Honey Buzzard, Turtle Doves, and Nightjars in the plains, in full breeding plumage, and in open defiance of the law; but what can I do? As Mr. Southwell truly remarks, even if one felt inclined to take up these cases, would it do any good? The penalties are so inadequate, and above all, though perhaps this may seem a selfish view to some, these men's mouths and others like them would be eternally closed, which when one is working up a county fauna would be a most serious thing. So that, however much one may deprecate and deplore the destruction of our favourites, the most that can be done is to see that this destruction is not wholesale. I have often procured immunity for the remainder by a little judicious expenditure of the current coin of the realm. These men rely on one's honour "not to give them away," so that one is compelled as it were to a certain extent to "bow oneself down in the house of Rimmon."

I forgot to mention that, while visiting the cliff-climbers at Bempton, where the Guillemots, Razorbills, Puffins and Kittiwakes are as numerous as ever, I was told that a Guillemot, pure white except for its black head, had been frequently seen by them.

In conclusion: I was much interested in an article that appeared in 'The Zoologist' some little time since, on the time of day at which various birds lay their eggs. I have taken particular notice this season, and the conclusion I have come

to is that no hard and fast rule can be laid down, for while many birds—Thrushes, Blackbirds, Chaffinches, &c.—generally lay between the hours of ten and twelve a.m., a Reed Warbler I had under observation laid all its eggs before six a.m., while a Spotted Flycatcher laid its clutch in the afternoon after three p.m.

## NOTES AND QUERIES.

## AVES.

The Whinchat in Co. Dublin.—I have long been anxious to make the acquaintance of the Whinchat (*Pratincola rubetra*) in Ireland; yet, although I frequently visited what I thought were suitable localities, I was never fortunate enough to do so until June 9th last. I will not, for obvious reasons, specify the locality in which I met my long-sought friend; sufficient to say that it was about twelve miles distant from the Irish metropolis, and that there, on the day I have mentioned, I was delighted to hear the familiar "u-tick" which I heard last in the Rhone Valley. With my glass I perceived that there were four Whinchats in the field; the male was flitting from bush to bush singing gaily, whilst the female seemed to be employed in feeding one of two young ones by her side. On the 11th I returned with my son Ambrose, when we got quite near the birds, which were far from being shy. My friend Mr. Edward Williams, naturalist, tells me that a few years ago he observed Whinchats in the very same locality.—CHARLES W. BENSON (Rathmines School, Dublin).

The Marsh Warbler in Oxfordshire.—Last year I published no account of the Marsh Warblers (*Acrocephalus palustris*) which have now for seven successive summers occupied an old osier-bed in this neighbourhood; my last communication to 'The Zoologist' was in August, 1896 (p. 286). In 1897 they had arrived by June 4th, sang vociferously for about ten days, and then quieted down as usual when the nest was being built. There were beyond doubt two pairs. I was away till well into July, and when I returned they were still in the osiers with their young; there they remained till the 22nd, when I lost sight of them. This year my observations have been, I think, sufficiently interesting for publication. The day on which I first heard them was again June 4th; I had already heard the bird near Abbeville in France on May 28th, but have never yet heard it in England till the first week in June. On the 10th the osiers were alive with the brilliant singing of at least two or three males, in a space about half an acre in extent. The Sedge Warblers seemed entirely outdone, and the listener could regale himself with the strains of the rarer species undisturbed by any other songs. On the 20th, after some careful watching, I found a nest with five eggs almost in the exact spot where I first found



one in 1893, which is now in the Oxford Museum; and on the 21st I found another, containing one egg, in the identical spot almost to a square yard where I found one in 1895 (June 26th). This close adherence to the same site year after year has also been noticed by my friend Mr. Playne near Bristol. The same day a young friend from Oxford, whom I had invited to study the bird, discovered a third nest with four eggs in a new site. This was a little further from the edge of the osier-bed than has so far been the case; but my experience entirely confirms Mr. Seebohm's statement (or rather that of his German informant) that it is almost useless to look for the nest in the *centre* of any dense thicket. All the eggs were very characteristic, of a clear greenish or bluish white ground colour; but the spots and blotches were somewhat larger and more numerous in one clutch than in the others. On the 25th Mr. O. V. Aplin came to look at these three nests, and we had the pleasure of a leisurely inspection of the sitting bird in two cases out of the three. Looked at from a yard or so away, the colour of the back is a light uniform neutral brown, with a shade of olive, and the eye-stripe is only discernible when looked for closely; it passes not over the eye, as described in Mr. Howard Saunders's 'Manual,' but through it. By this time the nest which, when I originally observed it, had one egg only, contained three, but the previous day there had been four. This nest differed from the others in having more or less wool in its composition, and a large loose lump of wool in the lining. This attracted my attention, for I had never seen wool in a Marsh Warbler's nest before; there is sometimes a little moss, and this was the case also with the nest of which I am speaking. We saw a Cuckoo this day at the osier-bed, and I had seen one there once or twice before; but it did not occur to me as yet to associate the disappearance of an egg or the peculiar make of the nest with the presence of this mischief-maker. But on the 27th, when I next looked at the nest, there were only two eggs, and my suspicions began to be aroused, for there was no sign that any human being had been to the spot. On the morning of the 28th the bird was no longer sitting, and the eggs were all gone. There was no trace of them underneath the nest, among the roots of the meadow-sweet, in which this nest, like all the others this year, had been built. On examining the nest more closely I thought I saw something at the very bottom, underneath the lining, which as usual was of dry grass and horsehair, with the addition, as I have said, of some wool and a few minute fragments of moss, and, putting in my finger, I felt an egg. I then cut away the meadow-sweet, with the nest in it, and, getting it into a good light, could see a Cuckoo's egg, of the greenish-brown type often found in the nest of the Reed Warbler and other birds, almost hidden, and quite firmly fixed below the lining. The nest could be held upside down without displacing the egg, which occupied a small hole or chamber

in the floor of the nest. As I was going that day on a visit to Mr. Aplin, I took the nest with me; we extracted the egg from its hole, blew it and replaced it, and had the nest photographed.\* This is, I believe, the first instance on record in this country of a Cuckoo's egg being laid in a Marsh Warbler's nest. Whether this can throw any light on the peculiar position of the egg in the nest may indeed be doubtful; but I am inclined to guess that this Cuckoo is in the habit of depositing her eggs in the nests of Sedge Warblers or Whitethroats, and that, finding herself too late for these (for a Whitethroat that had a nest hard by had been sitting a long time, and the Sedge Warblers in the osiers had young already), she put the egg into the Marsh Warbler's nest when only one or perhaps two eggs had been laid in it. And it is just possible that the striking contrast between the Cuckoo's egg and those of the intended foster-parent enabled the latter to discover the intruder, which she buried in the bottom of the nest out of sight, adding some new materials, *e.g.* the wool I have mentioned, with this end in view. However this may be, the facts are as I have described them, and the nest will be placed in the Oxford Museum, with the Cuckoo's egg thus buried, so that anyone who may be studying the ways of the Cuckoo and its victims will be able to form an opinion for himself. On July 1st I was glad to find that the birds were evidently at work on a new nest; the cock was singing vigorously in heavy rain at six in the afternoon, a sure sign of renewed activity. After a short absence I returned on the 6th, to find that another of the three nests had been discovered and destroyed; but in the third the young were just ready to fly. They are now (July 9th) about in the osiers with their parents, whose warning notes, more musical and agreeable than the harsh grating of the Sedge Warblers, are to be heard on every side. The plumage of the young birds is, as I observed two years ago, much darker and more rufous than that of the parents, and the throat and breast are of a warm buff. I may add that the vigorous singing still going on shows clearly that one new nest at least has been built within the last few days.—W. WARDE FOWLER (Kingham, Chipping Norton).

**On the Nesting of the Spotted Flycatcher.**—A pair of Common Flycatchers (*Muscicapa grisola*) nesting in my garden built their first nest on the spouting against the house, which unfortunately was pulled away during building repairs. The second nest, which they started to build a few days after, on May 31st, was placed in a rose tree nailed to the house within a few feet of the old site. On June 6th the nest was finished, and on the 7th the first egg was laid. To notify at what hour the eggs were laid, I visited the nest at 5 a.m. the next morning without finding a further addition; the

\* It may be as well to state that the Cuckoo's egg was quite fresh when blown; it was small even for a Cuckoo's, but had the usual hard shell.

hen bird was on the nest, however, at 7 o'clock, and at 8 a.m., to my surprise, three eggs were deposited, which caused me to make a more careful examination as to the possibility of any egg that might be laid on the edge of the nest and roll in subsequently. On the 9th, however, two more eggs were laid, and the bird commenced to sit, another egg (making a clutch of six) being added afterwards. On June 23rd three eggs were hatched, one of the remaining three being infertile. On the following morning there were four young, and in the evening the last egg was hatched. On July 6th the three young ones reared out of the five left the nest, and, as frequently happens, also left the immediate locality, neither the old nor young having been seen since in the garden. To what extent the double laying exists I am unable to say, but with close watching in future it may be possible to throw further light upon this subject. Construction of nest, 7 days; depositing clutch of six eggs, 4 days; incubation, 14-15 days; young in nest, 12-13 days; total nesting, 37 days.—J. STEELE-ELLIOTT (Clent, Worcestershire).

**Spotless Eggs of the Spotted Flycatcher.**—An answer to a correspondent, signing himself "Isham," in the 'Field' of July 23rd, to the effect that "spotless eggs of the Spotted Flycatcher (*Muscicapa grisola*) are very unusual," and further embodying a doubt as to the correct identification of the species, has just caught my eye. May I, as one almost as familiar with birds' eggs as the letters of the alphabet, and in the interests of a future generation, put it on record with all humility in the pages of 'The Zoologist' that upwards of a quarter of a century's unremitting birdsnesting has left me with the fixed conviction that of all the varieties of eggs, such as drab unspotted Chaffinches', white Robins', pink Jays', blue unspotted Blackbirds', &c., one is liable to come across, there is no freak so fashionable as a Spotted Flycatcher's nest containing a clutch of eggs with the ground colour, generally a pale blue, unruffled by spot or speck. At p. 77 of that pleasant little work, 'Our Summer Migrants,' the author, referring to the Redstart, writes as follows:—"It is not unusual to find the nest, containing five or six pale blue eggs, upon a peach or plum tree against a wall; upon a crossbeam of a summer-house." Personally, I have never known a Redstart nidificate except in a hole, or at all events in a covered site; and I make no doubt that much confusion has been generated in the past by eggs resembling and wrongly identified as Redstarts' being discovered in nests which in reality belonged to Spotted Flycatchers.—H. S. DAVENPORT (Melton Mowbray).

**Cuckoos recently observed in Aberdeen.**—Two young Cuckoos (*Cuculus canorus*) were successfully hatched this year on natural pasture on my farm. In both cases the foster-parents were the same species as in the

former year—Mountain Linnets (*Linota flavirostris*). On May 30th a Cuckoo's egg was detected in a nest, and in a day or two a young one was hatched. The egg was nearly like those of the foster-parents; just a little longer or perhaps a little larger, with the general colouring of the other eggs. The nest altogether contained four eggs. The first day after hatching the young Cuckoo (a weak creature) was in the nest, while two young and an addled egg of the foster-parents were lying near, but had all disappeared by the following day. The young Cuckoo, which had less down than the other two, could not have evicted them; but who evicted and who carried away it is impossible to tell. The same care and attention was given this one as the other described in 1897, and on June 22nd it flew away from the nest, and was seen three days later still attended by the foster-parents. This went on to the 7th July, that being the last occasion on which it was seen. This bird was remarkable for the uniform darkness of its plumage. On June 22nd the second one was found in a nest nearly one hundred yards from the other. It was about half-grown, and the four eggs of the foster-birds were found lying in a small hollow such as might be made by a bullock's foot. They were about three feet from the nest and chipped, either through the young birds having been about to emerge from the shell, or, as is just possible, had been removed by the bill of a bird, and received the marks that way. It is difficult to understand how they could have all been ejected by the young Cuckoo and rolled so regularly together by themselves. On July 7th this bird was seen moving about at a short distance from the nest, and returning to it again. On July 9th it had deserted it, but the foster-parents were still moving about near the nest, while the three were seen for some days later flying about in the vicinity. It seems probable that the Cuckoo would place her egg in nests of birds whose eggs are at different stages of incubation. Would it be too much to suppose that the eggs in this case had been set apart to feed the young one? They were destroyed because they might have attracted Hooded Crows or similar depredators, otherwise it would have been interesting to note whether the young Cuckoo would have used them for food. The colour of this Cuckoo was extremely rufous, the plumage being in strong contrast to the other one; whilst the bird of 1897 was between the two in this respect. It is fairly reasonable to suppose that the eggs had both belonged to one bird, more especially as it is well known that some days elapse between the production of each egg of the Cuckoo. We had no means of ascertaining the sex of either of these birds, as colour does not denote it; so we must find other reasons for so great a variation in colour which these two presented. As observations of these birds were practically of daily occurrence, it was remarked that there were no appearances of the old Cuckoo being about; still the latter might put in an appearance at night or in the morning when



there was no one to see her. Thus we are without sufficient evidence to say that she had no interest in them. This is the first time which I have known of two young ones being reared near each other. Regarding the numbers of eggs which one Cuckoo will produce in a single year, and which various naturalists have estimated at from twenty to five, we should favour the latter number, or perhaps even less; but we believe that it would differ very much with varying conditions. When we consider that in two years in this neighbourhood three pairs of Mountain Linnets have been hatching Cuckoos, another two pairs having done so in former years, while no case was observed in that time of other birds doing so, we are bound to place this bird as the favourite foster-parent of the locality; and if Cuckoos were laying many eggs the effect would be such as to curtail the foster-bird seriously in numbers. I cannot find a reason why this should be so, for there are plenty of other birds, such as Larks, Brown Linnets, Hedge-sparrows, Robins, Wagtails, Chaffinches, Yellowhammers, &c., which might serve this purpose. It is also noticeable that the favourite is quite a local bird, as it does not extend into the low part of the country, and hence it is not generally noticed in natural history works as one of the usual foster-parents of the Cuckoo. Another point to be observed is that this bird has little connection with woods, moors being its favourite haunt; while Cuckoos are very fond of frequenting plantations. We have seen in the one case that the egg resembled those of the foster-birds, while that each of the young birds differed in the colour of plumage. Then the date of leaving here—July 7th is the last date which the Cuckoo was heard. I believe that they do not stay long after we cease to hear them; for instance, one which frequented my garden or its vicinity since their arrival has disappeared, and while some may remain for a while, everything leads me to think that they flit about the end of July. Then of course the foster-birds here will not follow far; so that the young Cuckoos must shift for themselves, or obtain some guidance from parent Cuckoos or other promiscuous birds of their own species.—W. WILSON (Alford, Aberdeen).

**Mallard and Pintail interbreeding in Captivity.**—Last year I induced my friend Mr. R. Mann to pair a drake Pintail (*Dafla acuta*) with a female Wild Duck (*Anas boscas*), but a Mallard found access to his neighbour's mate, and her eggs hatched into pure-bred Mallards. This year the Pintail succeeded in pairing with a Wild Duck for a second time, and five eggs hatched. One duckling was killed by a Herring Gull, but the other four have feathered, and promise to be handsome specimens of this well-known cross. They most resemble the Pintail in immature plumage.—H. A. MACPHERSON (Allonby Vicarage, Cumberland).

**Breeding Range of the Scaup-Duck.**—I do not agree with your correspondent, Mr. Crossman (Zool. *ante*, p. 319), when he presumes that any

stray Scaup-Duck (*Fuligula marila*) must have come from an ornamental water. It is just possible that, as in the case of the Teal, the breeding range of this species may be creeping further southward. I am not aware that the Scaup has been known to breed even so far south as the Stewartry of Kirkcudbright; yet on May 25th, 1892, I saw a pair of these birds frequenting Jordieland Loch, a sheet of water on the moors about five miles from the town of Kirkcudbright. I need hardly repeat from my notes that: "The male had a black neck and breast, the upper parts of the body also being dark, the under parts white. The female was similarly marked, but dusky. Their cry was hoarse compared with that of the Mallard." Looking to the season at which I saw these birds—at the time a female Mallard had her young, little puffs of down, in the water in another part of the loch—I think that the Scaup may have bred either there or in the vicinity, although unfortunately I could not certify this. The Teal breeds in fair numbers in that part of the country; the numbers to be seen in winter do not all remain to breed, but I think these are on the increase. It is not improbable that the same climatic tendency that keeps the Teal may ultimately keep the Scaup.—J. W. PAYNE (Edinburgh).

**Occurrence of the Fork-tailed Petrel on the Yorkshire Coast.**—I have a fine example of this Petrel (*Cymochorea leucorrhoa* Vieill.), taken on the beach at Filey on March 26th of this year, after some heavy westerly gales. This bird has been set up with the wings expanded, and the light smoky grey of the upper wing-coverts is very conspicuous. Both this and the closely allied Ridgway's Petrel (*Oceanodroma cryptoleucura*) of the Canary Seas are figured in Lord Lilford's 'Illustrations.' In the latter the tail is not deeply forked, but nearly square. The upper tail-coverts are described ('Ibis,' 1897, p. 54) as white tipped with black; this feature, however, is probably common to both, as my Filey bird has the tips of the white upper tail-coverts and the shafts of the same very dark.—JOHN CORDEAUX (Great Cotes House, R.S.O., Lincoln).

**Bird Notes from the Northern Cairngorms.**—The following account of some of the birds which are to be found near Aviemore, Inverness-shire, is the result of a few rough notes made by myself this summer (June 24th–July 7th) during a holiday spent in the district with three fellow-tourists. We made Coylum Bridge our headquarters, from whence we explored the forests of Rothiemurchus and Glenmore, and the northern slopes of the Cairngorm Mountains. Our first expedition was to Lochan Eileau, where we hoped to see the Ospreys (*Pandion haliaëtus*), a pair of which are said to have nested on a ruined castle in the loch, with varying intervals, for the last century. We were much disappointed to find the eyrie deserted, but on enquiry were told that a pair had arrived as usual in May. Soon after

their arrival, however, a third bird, presumably a male, appeared on the loch, and a fierce fight ensued between two of the birds, the result of which was that the eyrie was shortly afterwards deserted. Although no young appear to have been reared on the castle this year, a pair of Ospreys seem to have remained in the neighbourhood, as a bird was seen on the castle about the middle of June, and I myself saw a pair flying in circles high above the loch on July 6th. We saw an Osprey's nest which had been built in a large fir tree overhanging Loch Morlich, but were told by the keeper that it had not been used for the last five or six years. Another interesting bird we noticed was the Greenshank (*Totanus canescens*), of which species we saw three or four pairs, all of which, from their manners, appeared to have young. Their alarm-cry is exceedingly resonant, and they also utter a chattering note, like that of the Kestrel. We only saw one young bird, which I flushed from some marshy ground, while the parent birds were flying over my head, calling loudly. It was fairly strong on the wing, so the Greenshank must be rather an early breeder. This species often perches on trees; in fact, we saw them more often on the tops of small firs than on the ground. They seem, however, to have considerable difficulty in keeping their balance on trees, and probably only resort to them when they suspect danger. We met with several parties of Crested Tits (*Parus cristatus*), both in Rothiemurchus and Glenmore forests. They do not appear to be at all uncommon in the district, and when once we had learnt their call-note, we came across them nearly every day. The note to my ear sounds like a spluttering "ptur-r-r-re," rather low, and sometimes preceded by a shrill "zi-zi-zi." Some of the young had apparently just left the nest, and were being fed by the parents. We also saw several parties of Crossbills (*Loxia curvirostra*), consisting of both young and old birds, in Glenmore Forest, where they had probably been reared. The Common Sandpiper (*Totanus hypoleucus*) was particularly numerous on the shores of all the lochs which we visited, especially on Loch Morlich, on the banks of which we found two nests, each containing four eggs. This bird follows the streams well up into the mountains, and we saw them up to about 2000 feet above sea-level. We saw plenty of Black-headed Gulls (*Larus ridibundus*), either fishing on the lochs or following the plough like Rooks, and we found a colony of about two hundred pairs which were nesting on a marshy loch near Aviemore, where the nests were built among the reeds, and usually almost floating on the water. A great number of Oystercatchers (*Hamatopus ostralegus*) breed on the banks of the river Spey, above Aviemore. The birds were exceedingly numerous and very noisy, and we found one nest with three eggs, and many others which only contained shells. The young birds on being handled feign death, drooping their necks and relaxing all their muscles, so that they appear quite limp



and helpless. This species is also to be found on most of the lochs, and we saw one on Loch Eunach, at an elevation of about 1700 feet. On the west of this loch is a precipice of about 2000 feet, where in former years a pair of Golden Eagles are said to have had their eyrie. Coots, Teal, and Wild Duck (*Anas boschas*) might also be seen on most of the lochs, usually followed by a brood of young. We noticed a Red-breasted Merganser (*Mergus serrator*) on the Spey, accompanied by two young birds, and on another occasion I saw four birds flying over Loch Morlich, which from their size and general black and white appearance must, I think, have been male Goosanders (*M. merganser*). Near this loch we found a nest of the Ringed Plover (*Ægialitis hiaticula*), containing two eggs. Ptarmigan (*Lagopus mutus*) were fairly numerous on the mountains above the altitude of 3000 feet, but we seldom saw them at a lower elevation. We noticed many of their egg-shells scattered about among the rocks, the contents of which had evidently been sucked by Grey Crows, and also came across young birds in various stages of growth. The hen birds were remarkably bold when they thought that their young were in danger.—F. L. BLATHWAYT (Weston-super-Mare).

#### PISCES.

*Centrolophus pomphilus* on the Norfolk Coast.—A specimen of the "Black Fish," a species not hitherto recorded as met with on the Norfolk coast, was found, still living, cast up by the sea on Sea Palling beach about the 27th of March last, after the severe weather, accompanied by north-east gales, which had prevailed for the few previous days. It had been stuffed when I saw it, but in a fresh state measured 12 in. in length and 3½ in. in depth.—THOMAS SOUTHWELL (Norwich).

Notes from Great Yarmouth.—As is generally known, the Mackerel (*Scomber scomber*) is very eccentric and capricious in its habits, sometimes suddenly leaving a noted locality, and, after being away for an uncertain time, as suddenly turning up again. Our old Mackerel fishery of May and June died out in the seventies, owing to the fish forsaking the coast. Strangely enough, they came in afterwards with the Herrings, numbers being taken, even up to November. This year something like the old order of things obtained, and great quantities of Mackerel have been landed on the fish-wharf. On May 9th I have a record of heavy catches. A 13½ lb. Salmon (*Salmo salar*) was taken in a draw-net off Gorleston, May 17th. An example of the Scribbled Mackerel (*Scomber scriptus*) came to hand May 18th, another June 19th. Two Sting Rays (*Raia pastinaca*) observed on the fish-wharf; one weighed over 15 lb. This fish has been taken off our coast in rather more than usual numbers this spring. A



"double Turbot" (*Rhombus maximus*), with only a white under side to the head, and with one eye in the usual "notch," May 24th; dark on both sides, and also spined. A nine-inch Sea Angler (*Lophius piscatorius*), the smallest I have seen locally taken, was caught in a shrimp-net on June 3rd. An exceptionally fine Surmullet (*Mullus surmuletus*) was brought in on June 14th; weight, 2 lb. 10 oz. — A. PATTERSON (Ibis House, Great Yarmouth).

**Sea Lamprey in Cumberland.**—On the 20th of July I had the pleasure of weighing a fine example of the Lamprey (*Petromyzon marinus*). It was one of a pair which had ascended the river Eden, probably for the purposes of reproduction, and was taken near Carlisle. It scaled about 2½ lb. I only mention it because, though a common fish in many English rivers, it is a comparatively rare fish in the north-west of England. The last local example that I had handled previously was taken in Morecambe Bay, near Ulverston.—H. A. MACPHERSON (Allonby Vicarage, Cumberland).

#### AMPHIBIA.

**Notes on Batrachians: Frog attacking Toad.**—The interesting paragraph in 'The Zoologist' (*ante*, p. 323) on Frogs attacking Toads reminds me of a curious incident which I witnessed some time ago. I used to keep a number of Frogs and similar creatures out of doors in a cool airy situation close to a cellar window, where they lived in harmony for a long time. One day, when feeding them, I remember noticing a Common Frog (*Rana temporaria*) and a Common Toad (*Bufo vulgaris*) both eyeing a tempting morsel—a worm, I believe. Suddenly the Toad seized and speedily swallowed the worm. The Frog remained staring at the spot where the worm had been, and then, as if realizing his loss, deliberately turned and bit the Toad over the jaw. I was much astonished at this exhibition of revenge on such an animal, as the worm had completely disappeared, and it certainly was not a belated attempt to obtain it. I have never known another instance, and I have had considerable experience in keeping these and similar creatures, having studied the following species:—*Testudo græca*, *Emys europæa*, *Lacerta agilis*, *Zootoca vivipara*, *Anguis fragilis*, *Tropidonotus natrix*, *Rana temporaria*, *Bombinator igneus*, *Hyla arborea* (one has lived four years here), *Bufo vulgaris*, *B. calamita*, *Triton cristatus*, *Lissotriton punctatus*, and *Salamandra maculosa*. — GRAHAM RENSHAW (Sale Bridge House, Sale, Manchester).

#### MYRIOPODA.

**Mode of Progression among Millipedes.**—During a stay at Waterval-onder (East Transvaal) in November last, I was much surprised at the

number of Millipedes moving about among the fallen leaves, and more so at their peculiar method of hurrying off when disturbed. This they did by turning on their backs, and retreating with an undulating and wavy motion without at all using their feet. This so attracted my attention that I repeated the observation with these Millipedes on more than a dozen occasions, and in every instance their action was the same. — A. DUNCAN (Johannesburg).

#### PRESERVATION OF ZOOLOGICAL SPECIMENS.

It was with great pleasure that I read in 'The Zoologist' you are about to open the pages of that magazine to notes on taxidermy, and I also perused Mr. Oxley Grabham's remarks with the greatest interest. I hope the new venture will meet with the support which it thoroughly deserves, and I am looking forward very much to the contributions of other taxidermists.

All large works on this subject are expensive, and as far as I know there is no periodical which devotes any attention to this most fascinating art. I know well how disappointing it is to a beginner to have his attempts at stuffing severely criticised by some professional who sees faults which the tyro perhaps fondly imagined did not exist. I can fully endorse Mr. Grabham's statement to the effect that one must have any amount of patience, and be devoted to the study of whatever branch or branches of taxidermy he desires to pursue. I am devoted to stuffing, and attempt everything which falls into my hands, from caterpillars to fish. This last is the most difficult of any subject in which to attain even moderate proficiency. I now imagine (in error, perhaps) that I have mastered the faults and peculiarities of the beginner as far as the birds are concerned, though there are still some birds which are extremely difficult to skin, let alone stuff, in a workmanlike manner. For instance, the novice may perhaps endeavour to skin a Cuckoo or Woodcock, and fail miserably in the attempt. Even a good professional will admit that these two birds, as well as a few other species, require extra care in the skinning; they are generally very fat, and their skins are as delicate to handle as wet blotting-paper.

Decidedly the bird for the beginner is the Starling, being not too large, and having a fairly tough skin. It is indeed too true, as Mr. Grabham remarks, how often one sees birds placed in impossible positions, legs and beaks painted the wrong colour; and this is done not only by amateurs, but, alas, by a few professionals, who certainly ought to know everything about the creatures they set up. After a bird has been skinned, the question naturally arises as to the kind of preservative which must be used. There are so many different sorts, their name is almost legion. Most, I think, are

equally efficacious, but I would strongly warn everyone against the use of alum for bird-skins, as it tends to make them brittle, and I fancy is not of much effect against the attacks of *Dermestes*. For the skins of large animals it may be useful. I always anoint my specimens with carbolic acid and a special kind of powder containing such, and make a mixture of the two, which I paint on the skin of the creature I am preserving. Arsenical soap should also be avoided, as it is undoubtedly dangerous to have much to do with this poison. That an ounce of practice is worth a pound of theory is an axiom which no one would think of disputing, and the beginner who can start away under the supervision of a professional is to be envied. I had to wait several years before such a chance was available. Most professional taxidermists I have met have been very kind in giving me many hints, which have been of the greatest use, and they themselves are always glad to hear of any new "discoveries," even if they do not adopt them. Presuming, therefore, that the following suggestion may be of some use to those readers who study taxidermy, and also in meeting a well-recognized difficulty, I should be pleased to hear if my idea meets with any approval. Everyone has noticed, even in the cases of the South Kensington Museum, where a sheet of glass is made to represent water, the utter absence of ripples, and this is all the more noticeable where a bird is stuffed swimming or at rest in the water. My plan is to paint, in *very* dilute glue, those ripples which would naturally occur from the motion, however slight, of the bird in the pool of water. I have found it the most realistic of any plan which I have as yet come across, and I sincerely hope it may be of some use to others until a better one is substituted. The glue does not crack or chip off (according to my experience) as one might expect. I very much want to know of some cheap way of making a large hole in a sheet of glass, as is done in the National Museums, in order to receive the body of a bird or the stump of a tree. I should be delighted to hear of any feasible plan which would answer my purpose. Another thing I should like to know is the address of some firm which supplies really good artificial flowers, leaves, &c., at moderate prices. Good accessories are of great advantage to the life-like effect of a carefully-finished case.

A few words more as regards the accessories, more especially the rock-work: anyone who has a taste for painting and an eye for colour will find it of no great difficulty to successfully imitate the colour of any stone, and a well-painted scene at back of a case is a great *pièce de résistance* of undoubted value to the general *tout ensemble*. Witness some of Rowland Ward's cases; the beauty and perfection of detail are charming. It is most satisfactory to look at cases made years ago and compare them with those which have recently been finished. The amount of improvement which is acquired by constant practice will be noticed at once. I think a case

arranged and set up by oneself is usually more valued than if it had been done by a professional, at least that is how I feel. I am sure no one who has any aptitude for taxidermy will ever regret having taken up such a delightful subject, and beginners need never give up in despair if they have to throw away their first twenty attempts at stuffing, as they cannot possibly hope to attain great proficiency at a bound. It only needs practice and a good knowledge of the habits of the creature which it is proposed to set up. This last point is important, for by neglecting it mistakes will assuredly occur which would otherwise have been avoided. It is not of much use to *chance* getting a good attitude for a bird or animal, but before attempting to set it up it is advisable to think of every conceivable pose which could be assumed strictly in accordance with nature. Good books ought to be consulted for correct positions, or the natural attitude may be obtained by observing live specimens.

In conclusion, I would impress on everyone, whether amateur or otherwise, to make it a rule to label every specimen most carefully with particulars as to date, locality, and sex; any other remarks might be added if desirable. A collection, no matter in what branch of natural history, is practically valueless without any data. The value of any collection is so much more enhanced by careful and truthful notes, and the amount of extra trouble is well repaid should the collection ever be offered for sale.—C. B. HORSBRUGH (4, Richmond Hill, Bath).

---

CORRECTION.—In the note on Daubenton's Bat in the Conway Valley (*ante* p. 317), for "Llmgwy" and "Llyn-yr-Afange" read "Llugwy" and "Llyn-yr-Afancg."—CHAS. OLDHAM (Alderley Edge).



## NOTICES OF NEW BOOKS.

*The Fauna of British India, including Ceylon and Burma. Birds.*  
 Vol. IV. By W. T. BLANFORD, F.R.S. Taylor & Francis.  
 1898.

THE description of the vertebrate animals of British India, in eight volumes, is—by this concluding and fourth volume on birds—now completed. India has not only been the training-ground for our soldiers, but has been an area—and long will be—productive of the best traditions in zoology and zoologists. We need not recapitulate the well-known names that were made in India and have become household words in zoology, and which, with perhaps the exception of Ferdinand Sloliczka, have been those of our own countrymen; nor is it necessary to recall the many instances in which the first zoological inspiration was received in that torrid clime which one usually leaves, but which one never forgets. Again, its field naturalists, or in other words its sportsmen, have always been renowned and will continue to exist; in fact, our Indian Empire is a zoological influence from which few sympathetic spirits have escaped.

In the present work the number of Indian birds regarded as distinct species is estimated as 1626, which fairly agrees with Hume's enumeration in his 'Catalogue' of 1879, which reached a nett total of 1608; and perhaps this expresses a somewhat synthetic concord between good authorities, when the personal equation of individual discrimination between species and varieties is considered. It must also be remembered that of the four volumes devoted to Aves in this series, the first and second were contributed by Mr. E. W. Oates, and the remaining two by Mr. Blanford, so that the general specific consensus of opinion is still more marked. Vol IV., now before us, is devoted to the gallinaeous, wading, and swimming birds.

Ornithological publications such as these are of course primarily intended for the Indian or Oriental student; they may

be expected to say a last word in synonymy, and to serve a ready means for the identification of species. But their value extends over a larger field than the faunistic area in which they are centred, as many species have a wide range and their distribution is fully treated, so that in the problem of zoogeography the volumes must be shelved for consultation by the investigators of other faunas. We frequently find surprising additions in unexpected migrants. Thus, in the Petrels, our old maritime friend the "Cape Pigeon" (*Daption capensis*) is included on the authority of a specimen shot in the Gulf of Manaar, between Ceylon and the mainland, the skin of which is preserved in the Hume collection.

The completion of the vertebrate portion of this work should let loose some unused energy among Indian zoologists. They may now accept, and cease to too ardently criticise—for some years at least—the nomenclature of the series. We do not say that finality has been obtained; that, at least so far as specific treatment is concerned, is a question for the future, and must be based on more extensive knowledge than exists at present. But the Indian ornithologist can now estimate that his work is largely one of observation; he possesses a formula of identification that will be hard to beat, and with which he may be expected to remain content. The bionomical field is now the one to explore. Thanks to Messrs. Blanford and Oates one branch of Indian ornithology is thoroughly brought up to date, and is in line with the best current scientific conceptions. If the ubiquitous theorist can now be controlled, and observers take up the work, the volumes comprising the 'Fauna of British India' will not have been written in vain.

---

*Bird Neighbours.* By NELTJE BLANCHAN; with introduction by JOHN BURROUGHS. Sampson Low, Marston & Co.

THIS is a book written by a lady, and refers to North American birds. It is a somewhat sumptuous work possessing fifty-two coloured plates, and is what may be styled an extra-scientific rather than a non-scientific volume. It is intended to promote the knowledge of birds, but is not in any sense a primer of ornithology. Just as we sometimes find a Professor of natural

history who is not a naturalist, so we have in our authoress a lover of birds who is clearly not a scientific ornithologist. With this we have no complaint to make, for under the present circumstances we rather welcome the innovation, as the book makes no pretence to be anything but "an introductory acquaintance with one hundred and fifty birds commonly found in the gardens, meadows, and woods about our homes"; and systems are but a set of propositions to yet secure finality, while all should know their birds and their habits. We like the book for its purely American independence. Emerson has exclaimed for his countrymen—"We will walk on our own feet; we will work with our own hands; we will speak our own minds." And certainly our authoress has proved her emancipation on this point, for we find a perfectly new treatment of the subject. Thus after a rough sketch of "Bird Families" we have "Habitats of Birds," in which species are grouped according to the positions they frequent, such as in the upper or lower parts of trees, among foliage and twigs or on conspicuous perches, birds of the woods or their edges, birds found near water, birds that sing on the wing, &c. Then the birds are enumerated according to their seasonal appearance; again, according to size; and lastly,—and this is the method of the book,—"grouped according to colour." It is thus abundantly clear that we are alone with the birds, and for the nonce we may well discard all our classifications if we are with any pleasure to read these pages. The treatment is, therefore, an individual one; each bird is as unconnected and free from all systematic restraints as though a scientific ornithology had never spread its net of avian order. We pass from the Titmouse to the Jay; from the Nightjar to the Cuckoo. Colour is here the main plank of an alliance.

If our English Jay is evil in the sight of the gamekeeper, the Canada Jay (*Perisoreus canadensis*) is answerable for a long list of offences. We read that, according to Mr. Hardy, there is scarcely anything "which can be eaten that they will not take; and I had one steal all my candles, pulling them out endwise, one by one, from a piece of birch bark in which they were rolled; and another peck a large hole in a keg of castile soap. A duck, which I had picked and laid down for a few minutes, had the entire breast eaten out by one or more of these birds. I have

seen one alight in the middle of my canoe and peck away at the carcase of a beaver I had skinned. They often spoil deer saddles by pecking into them near the kidneys. They do great damage to the trappers by stealing the bait from traps set for Martens and Minks, and by eating trapped game, &c."

'Bird Neighbours' is written by a lover of birds, and will increase that love in others who may consult its pages. We must not expect to find science everywhere, but nature is universal; and he who has learnt to love the last will almost inevitably seek the first.

---

*The Birds of Montreal.* By ERNEST D. WINTLE. Montreal: W. Drysdale & Co. London: John Wheldon & Co.

THIS volume is devoted to the avifauna of the district of Montreal. The area covered by the work "is principally the island of Montreal, situated at the confluence of the Ottawa with the St. Laurence River, thirty-two miles long by about ten miles broad at the widest part." It is the centre of attraction for a large number of North American birds during the migratory periods in the spring and fall, and many species remain to breed. Two hundred and fifty-four birds are enumerated, arranged in a somewhat unfamiliar classification, commencing with the *Podicipidæ* (Grebes) and terminating with the *Turdidæ*. The first part is devoted to an enumeration, with bionomical notes; the second part consists of "abridged descriptions" of the species. The last portion of the volume consists of "Original Sporting Sketches" by various authors.

The book is naturally of local interest in the first place; but is also valuable for material in the study of avian geographical distribution. A few plates are given, but these are of a somewhat primitive description, recalling those in old works of travel.

The preface is dated 1896; but the volume has only just reached our hands.



## EDITORIAL GLEANINGS.

---

THE Trustees of the British Museum have appointed Professor Ray Lankester as Director of the Natural History Department. He succeeds Sir William Henry Flower, who retires, through ill health, on Sept. 30th. The remuneration is £1200 per annum.

---

WE recently (*ante*, p. 236) referred to a paper by Mr. Faxon on some "Observations on the *Astacida*, &c." Since then Dr. Emar Lönnberg, in the 'Zoologischer Anzeiger,' has contributed to the same subject "Some Biological and Anatomical Facts concerning *Parastacus*." *Parastacus hassleri*, Faxon, is found in Chile, and Mr. P. Dusén has related some facts as to its life-history. This Crayfish lives in slightly sloping, moist meadows. The humidity on the surface was, however, not greater than that Mr. Dusén could walk there with dry shoes," and there was no open water, lake, or river in the neighbourhood. Here the Crayfishes had made vertical holes in the earth, and round these holes they had erected "mud chimneys" out of the clayey material which they had carried up from their burrows. These chimneys had often a height of 2-3 decm. The results arising from Dr. Lönnberg's study of this species are, "that in *Parastacus hassleri* a partial hermaphroditism is prevailing, but male and female organs are not functionary in the same individual, neither are ripe elements of both sexes produced by the same specimen. The hermaphroditism could thus be called rudimentary." The *Astacida* seem to offer a most interesting study to zoologists, both by their functions and habits.

---

IN the 'Western World' for May last, a correspondent writes:—"In a very few weeks the last remnant of the Buffalo tribe, so far as Manitoba is concerned, will be removed from Silver Heights, near Winnipeg, where they now are, to the National Park at Banff. They have been given by Lord Strathcona to the Dominion Government, with a view to their preservation in the park, but how long they will stay there is another question. It is only too likely that their natural instincts will, in spite of their half-tame condition, reassert themselves and induce them to wander off in any direction. The herd numbers seventeen in all. There are five pure bred males, eleven, seven, six, five, and two years old; and four pure bred females, eleven, six, four, and two years old; one aged half-bred cow about sixteen years old, one three-quarter bred heifer three years old, one

three-quarter bred bull seven years old, and one three-quarter bred bull five years old. Four calves of last year, two of them pure, make up the lot.

"It is now well-nigh thirty years since the first Buffalo calves were brought in by Indians for James Mackay, of Silver Heights. A little later, when the herd had increased to about twenty, they were taken to Stony Mountain, where, having been bought by the late Col. Bedson, with the exception of the few claimed by Sir Donald Smith as his share, the bulk of the herd, including a few cross-breeds, were sold to "Buffalo Jones," who was then speculating on getting up a company to breed crosses on domestic cows for the sake of the robes, as well as the extra value of the meat. Besides a few owned by private individuals, there is still a wild herd preserved by the U.S. Government in the National Park at the head of the Yellowstone. In the Smithsonian Institute at Washington is a splendidly mounted group of stuffed specimens set up by Mr. Hornaday, who was sent out in 1883 to procure for that purpose a few specimens out of a small remnant then existing in the Bad Lands on the Upper Missouri. Some of the finest specimens were killed on that expedition. The bull stands 6 ft. high, and is set up just as he stood at bay, after he had been shot by Hornaday, and his leg broken. Millions of Buffalo were killed between 1873 and 1883, and some of the higher valleys looked white all summer with the skeletons of countless Buffalo that had been killed for the sake of their hides, the meat going to feast the wolves."

---

In the May number of the 'Osprey,' Mr. George Harlow Clarke, the Naturalist to the Peary Polar Expedition, 1893-4, contributes an article on "The Birds of Bowdoin Bay." Bowdoin Bay is situated far up the western shore of Greenland. It is "some five miles wide, extends inland a distance of about twelve miles due north from Inglefield Gulf, an arm of the Polar Sea penetrating the coast between Smith Sound and Baffin Bay." "A list, based on observations covering a period of twelve consecutive months, of the birds frequenting the bay comprises nineteen authenticated species." Some others were seen, but as yet they can only hypothetically be accorded a place in the limited ornithology of the bay. The most conspicuous bird is the Raven, and scarcely less numerous is the Rock Ptarmigan (*Lagopus rupestris reinhardtii*). These birds are indisputably resident species, and the Eskimos aver that the Snowy Owl and Greenland Gyr-falcon also "brave the vigorous sunless winter of that latitude. Prominent as summer visitors are the Mandt's Guillemot, Little Auk, Kittiwake and Glaucous Gulls, Eiders—King and Northern—Old Squaw, Snowflake, and Greenland Redpoll." The Red-throated Diver rears its young in that locality; the Wheatear was first seen on August 21st, 1893, but on July 4th, 1894, a nest containing seven eggs was found on the shore of Inglefield Gulf, a few

miles east of the bay. Knots and Turnstones were reported during July and August, and the Ring Plover was occasionally seen. The advance guard of Burgomasters and Kittiwakes arrived early in May, and in June, 1894, a solitary Snow Goose passed overhead, an occupied nest of the species being discovered in the Tucktoo Valley, beyond Bowdoin Glacier.

WE have received the Report of the Marlborough College Natural History Society for the year ending 1897. This Society shows every mark of vitality. Its president is Mr. E. Meyrick, the well-known lepidopterist; it has been found necessary to limit the number of school members to three hundred; while its financial position is shown by a credit balance of about £100.

Among interesting facts to be found in these pages is a census of the Rooks' nests in College Grounds, compiled by Mr. Meyrick:—"The nests were counted on April 6th, when there were found to be 13 in the trees facing B House, 153 in the Wilderness, 8 on the Mound, and 1 in a willow lower down the garden; total, 175, being an increase of 7 on last year, but not yet quite up to the record of 1894. During the last two years there have been (each year) two nests in the elms in Mr. Morrison's meadow at the top of Kingsbury Hill; this attempt at forming a new colony is probably due to stragglers from the College settlement."

Another note relates to a climbing habit in Frogs:—"We have made a curious discovery this summer in our garden. Some Frogs have taken up their abode for the last month in two deserted Blackbirds' nests, built in round thick box bushes about two feet from the ground. One Frog is generally to be seen alone sometimes on or near the edge of the nest, sometimes comfortably ensconced in the middle, only his head peeping out. In the other nest there are now always two Frogs."—(E. A. M.; July 20th).

An Anthropological Record, giving statistics of weight and measurement of all boys passing through the College, is a very valuable feature of these Reports. We read that in 1897 "some modifications have been introduced into our practice. The dynamometer test has been discontinued; the results attained by it were very fluctuating, being probably largely influenced by the condition of the subject on the particular day, and it has also been found difficult to get boys to pull to their full capacity, the action being unfamiliar. The chest measurement hitherto taken seems also unsatisfactory, as it is difficult to determine when the chest is really normally expanded, neither too full nor too empty. In place of these we have now substituted two chest measurements; one of the chest expanded to its fullest capacity, and one taken when it is emptied as far as possible. The mean of these two measurements may be regarded in practice as indicating the normal girth, and the difference between them gives a measure of the total capacity of expansion, and may be taken as an index of the efficiency of respiration."

PROF. MCINTOSH recently delivered a lecture in Aberdeen on "The Resources of the Sea." The following extracts are taken from a report of the lecture which appeared in the Aberdeen 'Daily Free Press':—

"He remarked on the enormous length of time and the large extent to which fishing had been carried on for the commercial sponge, the red coral, trepangs, the lob-worm, and similar marketable forms of fish life, and he said it was very interesting and instructive to find that after ages of eager pursuit there is as yet no sign of the extinction of these species. For ages man has gathered the sedentary and creeping shellfishes, such as Mussels, Cockles, Periwinkles, for food and bait, often without the slightest restriction, as in the case of the Periwinkle and Limpet; yet extinction has not ensued in the much-abused and easily reached Mussel, which has suffered, on the one hand, from reckless fishing, and, on the other, from the very varied suppositions of Mussel-merchants and politicians. In dealing with food fishes, he remarked that at first sight it seems almost incredible that such species as the Cod, Haddock, Whiting, Herring, Plaice, and Sole could withstand the vast annual drain caused by the operations of fishermen. Yet at this moment all these species in the open seas present as wide a distribution, and, in some, as little diminution in numbers, as if the constant persecution of man had not been. It is true that the large examples of the common species of food-fishes become fewer by persistent fishing, but it cannot be said that, in the case of either round or flat fishes in the majority of the areas, signs of extinction are apparent. Even, if, in the waters within a reasonable distance of land, fishing were carried to such a degree that it would be no longer profitable to pursue it, it is possible that the adjoining areas and the wonderful powers of increase of the few fishes remaining would by-and-by people the waters as before, because everything in the sea around, including the plentitude of food—so nicely fitted for every stage of growth—would conduce to this end. It has apparently been beyond man's power either to reduce to vanishing point or greatly to increase the yield of the open sea. The larger forms of such species as the Halibut, for instance, may be thinned by constant attacks, but the race continues as before with a resilience and pertinacity none the less sure that they are often doubted and may be denied."

---

THE Syndics of the Cambridge University Press have undertaken the publication of a series of monographs upon material obtained by Dr. Arthur Willey, Balfour Student of the University of Cambridge, from New Britain, the Loyalty Islands, and other Islands of the South Pacific during the years 1895–1897 inclusive. The work will embody the zoological results of the expedition, and will, it is expected, be completed in five or six parts.

